AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 1, line 3, as follows:

The present invention relates to a communication ~~method for use~~ in a communication network involving several user terminals communicating with at least one transmitter node~~[[,]] said transmitter node comprising~~ having a plurality of antennas and, each of ~~said~~ the user terminals comprising at least one antenna. ~~The invention also relates to a transmitter node as defined in the preamble of claim 8 and to a MIMO based communication network as defined in the preamble of claim 15.~~

Please amend the heading beginning at page 1, line 9, as follows:

Background ~~and Prior Art~~

Please amend the paragraph beginning at page 3, line 4, as follows:

One recent, alternative, way of handling communication in MIMO systems is opportunistic MIMO, which is also sometimes called multiuser diversity MIMO. The idea is that one may, for each of potentially many channels, send not all MIMO streams (hereafter called MIMO subchannels) to a single user, but instead ~~to~~ distribute the MIMO subchannels over several users. This can be accomplished in an opportunistic manner by selecting users based on Carrier to Interference Ratio (CIR) information fed back from the receiving users. In MIMO, CIR information is fed back for each MIMO subchannel. The more receivers present, the more likely it will be that one finds "good" channels, and this is guaranteed in a statistical sense. The opportunistic MIMO architecture is illustrated, for example, in W. Rhee, W. Yu and J.M. Cioffi: "Utilizing Multiuser Diversity for Multiple Antenna System," Proceedings of IEEE Wireless

Communication and Networking Conference (WCNC), p 420-425, September 2000, Chicago, USA~~[[,]]~~.

Please amend the heading beginning at page 4, line 4, as follows:

~~Object of the Invention~~Summary

Please amend the paragraph beginning at page 4, line 5, as follows:

It is an object ~~of the present invention~~ to optimize the overall use of network resources in a multi-user, multi-antenna communication network.

Please delete the heading beginning at page 4, line 7, which starts with:

Summary of the…

Please amend the paragraph beginning at page 4, line 8, as follows:

This object is achieved ~~according to the invention~~ by a communication method for use in a communication network involving several user terminals communicating with at least one transmitting node, said transmitting node comprising a plurality of antennas, each of said user terminals comprising at least one antenna,

said method being characterized by:

Please amend the paragraph beginning at page 5, line 12, as follows:

~~According to the invention, first~~ First, an algorithm is applied to a first user, or group of users, that optimizes communication with that group of users. The first set of user is normally a small

group of users relative to the total number of users. Then, whenever possible or desirable, communication is initiated with other users using a different optimization algorithm, or principle. In this way communication with one or a few users can be optimized while network resources can be used in an efficient way also for other users.

Please amend the paragraph beginning at page 7, line 23, as follows:

~~With the invention, an~~ An opportunistic MIMO gain is evident already at merely two users present, while the real benefit in traditional opportunistic MIMO normally requires more users. The amount of channel feedback remains low, and is nearly comparable with a single SVD-MIMO users feedback.

Please delete the paragraph beginning at page 8, line 22, which starts with:

In the following, the …

Please amend the paragraph beginning at page 9, line 5, as follows:

Figure 4 illustrates a first non-limiting, example embodiment of a system in which SVD-based MIMO and opportunistic MIMO are combined;

Please amend the paragraph beginning at page 9, line 7, as follows:

Figure 5 illustrates a second non-limiting, example embodiment of a system in which SVD-based MIMO and opportunistic MIMO are combined;

Please amend the paragraph beginning at page 9, line 12, as follows:

Figure 7 shows an example of a protocol that may be used~~ for the invention~~.

Please amend the heading beginning at page 9, line 13, as follows:

Detailed Description ~~of Embodiments~~

Please amend the paragraph beginning at page 10, line 3, as follows:

Figure 2 illustrates an opportunistic MIMO architecture. It should be noted that each terminal may be equipped with an arbitrary number of antennas. One transmitter ~~T2~~ T21 comprising four transmitter antennas TX21-TX24 transmits data to four receivers R21, R22, R23, R24. The first and the fourth receivers R21, R24 have four receiver antennas each, the second receiver R22 has three receiver antennas and the third receiver R23 has one receiver antenna. Feedback channels 7 from each receiver to a control and scheduling unit 9 in the transmitter are shown as dashed lines. The feedback channels 7 are used for transmission parameters such as link adaptation and scheduling data for use by the transmitter. A number of buffers (not shown) comprise the information to be transmitted to the receivers.

Please amend the paragraph beginning at page 10, line 13, as follows:

The control and scheduling unit 9 selects the buffer from which to transmit at any given time, and whom to send to, based on feedback data. It also selects the MCS to use for the transmission. The control and scheduling unit 9 can also take into account quality of service parameters, such as the maximum delay time for a data packet, fairness requirements, etc. The weight matrices W21 – W24 are used to adjust the reception at the respective receiver. In addition to weighting matrices, traditional receiver structures ~~is~~ are used after the weighting matrices, but also more

advanced receiver structures including multi-user detection/decoding can be used after the weighting matrices. In this case, the control and scheduling unit is arranged to identify receivers to which a good transmission quality is possible at any given time.

Please amend the paragraph beginning at page 11, line 7, as follows:

In Figure 4, the transmitter T4 has selected to optimize the transmission to the first receiver R41 using an SVD. For each of the receivers, a channel matrix $\mathbf{H}_k$ applies, k being the number of the receiver. In particular the first receiver R41 employs a weight matrix that is the Hermitian of the unitary matrix $\mathbf{U}_1$ derived from the SVD of channel **H41**, whereas the transmitter uses the unitary SVD matrix **V4**, similarly derived from channel **H41**. On a feedback channel 17, shown as a dashed line from the first receiver R41 to the transmitter T4, CSI information that is needed for SVD-based MIMO is transmitted to the weighting block **V4** in the transmitter. The CSI may also, if a reciprocal channel ~~exist~~ exists, be determined for the R41 to T4 channel, e.g. by sending a MIMO channel estimation symbol form R41 to T4 and subsequently estimating the channel. In this case, the ~~Interference~~ interference characteristic at R41 may also be signalled back to T4. With respect to transmit adaptation, an alternative method can be used for precoding the transmission to the first receiver, such as other antenna weight parameters or a non-linear precoding adapted for user one's channel. In particular, the interference pattern (instantaneous or statistically characterised) at the receiver may be taken into account at the antenna weight parameter selection. To the remaining users R42,...,R4K, opportunistic communication is used. From each of the remaining users R42,...,R4K a feedback channel 19 transmits MIMO CIR feedback or other feedback indicative of preferred link mode to use, to the control and scheduling unit 9'.

Please amend the paragraph beginning at page 15, line 1, as follows:

Figure 6 shows the result of a simulation of the channel capacity in a MIMO system as a function of the number of available users, as a function of either 0 or 10 dB average SNR, Γ. Independent and identically distributed Rayleigh fading channels with the same mean average path loss were assumed. Three different principles are shown: only SVD-based communication, only opportunistic communication, and ~~the inventive algorithm~~ an example application of the technology described combining the two. As can be seen, for one user the combined algorithm is equal to SVD only. At any number of users higher than one, the combined algorithm provides a higher channel capacity. If only opportunistic communication is used the performance in this example is lower than SVD up to a certain number of users and improves as the number of users increases, but it is always lower than for the combined algorithm.

Please amend the paragraph beginning at page 15, line 12, as follows:

Figure 7 shows one possible, but not the only, protocol implementation ~~for use in the invention~~. A base station BS is communicating with a number of mobile stations MS1, MS2,...,MSK. MS_1 has been selected for the SVD optimization. For the remaining mobile stations MS2,...MSK, opportunistic MIMO is used. Hence, at time n, MS_1 sends CSI feedback information to the BS, indicated by a diagonally shaded box. The feedback information sets the MIMO-antenna weight matrix to a channel matrix V_1. In the following time slots CSI information is transmitted. The first transmission, i.e. at time n+1, from the BS is destined to MS_1 (instead of sending data, a channel estimation symbol may be sent which pass through the V_1 matrix). At time n+1, the other mobile stations can determine their respective MIMO-CIR quality (or preferred link mode)

and feed it back to the BS (indicated as grey boxes). Also, MS_l feeds back an update of the CSI. At time n+2, the BS determines which user or users to send to. That decision is based on the CSI for MS_l and the MIMO-CIR quality for the other mobile stations. This procedure is repeated for subsequent time instances, until it is determined to select another user for optimized communication. In Figure 6, this happens at slot n+m-1, where mobile station MS_k starts reporting CSI information, that is, average and/or instantaneous knowledge of the channel and interference, to the BS (diagonally shaded or white boxes) and the other report MIMO-CIR information (indicated by grey or vertically shaded boxes).